Best practices for effective designs in election administration

Section 5: Rolling DRE ballots

Draft: May 2007



## Rolling DRE ballots (touch-screen)

#### **Overview**

To identify the design specifications included in this section, The Election Assistance Commission (EAC) contracted a study to help US elections officials meet Help America Vote Act (HAVA) ballot design requirements. Voluntary Voting System Guidelines (VVSG), endorsed by the EAC, have directly informed the enclosed best practice recommendations for rolling DRE ballots.

This document highlights the critical elements of user-centered voting experiences for election officials, ballot manufactures and legislators wanting to improve elections success for voters by understanding their needs.

Final materials have been informed by an iterative research process involving reviews of existing products and practices, usability evaluations with representative voters; and interviews with elections professionals, subject matter experts and poll workers. Because we were unable to develop equitable relationships with all election equipment manufacturers within the constraints of the project time-line and budget, design recommendations do not address the critical relationship between interaction design and hardware that many people with disabilities rely upon to vote. The best practices in this section focus on screen interactions exclusively.

#### Primary values for DRE ballot interface design

- Design for all voters: Emphasize voter needs over administrative and vendor requirements. Ensure that default screen settings (type size, color use, contrast levels) are usable for the broadest range of voters reasonably possible.
- Make ballots "transparent." Voters should always know where they are in the process. At the contest level, voters should know how to vote in a particular contest or question and know how many votes they have remaining in multi-selection contests.
- Use clear, concise language (simple language) for all content and instructions.
- Use color functionally to reinforce voter activities.
- Ensure that voters can review their voting record and change their votes from any point in the ballot.
- Ensure that voters can easily compare their on-screen voting record with their printed record. Provide redundant confirmations before a ballot is cast.
- Ensure that screen settings for language choices, text size, contrast, and audio support are easily available and easy to change.
- Use upper and lower case sans serif type, set at a minimum of 25 points, for all ballot content voters will read. Given a choice between adequate type size and reducing the need to scroll lengthy referenda text, ballots with larger type were found to be more usable, even if voters needed to scroll.
- Because the order of candidate names in contests affects rolling DRE ballot interaction, voter usability is enhanced by offering varied sequences of candidate names.

#### **Digital files and downloads**

Electronic versions of these files are available at: www.eac.gov/directory\_name.

The files are provided in two formats: Acrobat (.pdf) and InDesign (.indd).

Note: The use of any specific product is not an endorsement of that product. The design standards illustrated throughout this document do not rely on specific software or products. For copyright reasons, EAC cannot supply you with the fonts used in the InDesign files. They are from the Univers family and are available from numerous suppliers.

The following pages illustrate the interaction and interface design to provide guidelines for the final DRE ballot produced by a vendor. As most vendor code is proprietary, this is the only way we can provide design guidelines.

#### **Research findings**

Detailed findings that support the ballot design best practices are in the Research section and at www.eac.gov/directory\_name.

#### Section organization

This section has three sections: (1) Planning; (2) Overview of primary user scenarios and (3) Design, which contains core screen specifications.

#### **Planning**

The Planning section (pages 5.3 and 5.4) outlines how to incorporate resources into your ballot development and production process; areas in which those resources may be of assistance; and when those activities should occur. It offers tips on possible challenges and opportunities.

#### Voter experience

This section describes the basic linear voting experience offered by our rolling DRE ballot. Core user activities in all DRE systems include voting, reviewing votes, casting votes, getting help and adjusting screen settings.

#### **Design templates**

Essential screen templates, designed in support of primary values for a DRE experience (page xxx) and typical task requirements are outlined on pages xxx–xxx.

## Planning process

The planning table on the following page outlines additional resources and steps that can be taken to ensure that ballot content and design best serves the voter.

These recommendations are based on the best practices in Cook County, Illinois, and Design for Democracy's pilot test preparations in Nebraska.

## **Planning goals**

These additional resources can help ensure that:

- content is easily understood by all voters, including those with low vision and literacy issues.
- the visual organization of the content supports ease of use and confidence in the process.
- any necessary translations are accurate and sensitive to cultural differences in language and expression.

## Planning value by role/resource

- Simple language expert ensures that instructions and other ballot content are
  written in the most effective manner to help all voters (not just low-literacy voters)
  understand and follow instructions, and feel confident that they have properly cast
  their ballots.
- Information designer organizes the ballot content—text, graphics, illustrations—in a manner that is clear, simple, and functional, and that supports and enhances the voter's comprehension of the content and voting process. (Note: The design field is very broad; it is important to work with a designer who has expertise in the organization and presentation of complex information.)
- Usability expert works with the information designer to develop review, testing, and revision processes that improve the ballot's overall effectiveness, accuracy, and usability.
- Translator ensures proper grammatical, syntactic, and structural character of the content and appropriate use of local dialect variations. Accurate translations are vital for non-English-speaking voters, and on-line translations are often misleading, unclear, or simply wrong. The EAC can provide some model translations.
- *Cultural expert* reviews translated material to ensure that the translations are accurate and culturally relevant, and that their visual presentation is appropriate.

Prior to election cycle		
Resources	Planning, design, and usability activities	Tips
Election Official	Use current election to establish baseline for future work you are planning. Get voter feedback before starting not just afterwards. (EAC can provide a revised satisfaction survey.)	
	Establish an approval process/team. Determine who must sign off on improvements at each phase.	
Election Official	Choose an objective, professional resource to take ownership of information design challenges.	Whenever possible, hire a local person who will be able to meet with you and your extended production team (vendors, printers, etc.).
	Simultaneously hire a designer and a usability professional who can offer additional feedback.	Provide the designer with poll worker training, as well as any feedback from voters or poll workers.
	Partner with a policy advisor who can help guide design improvements through the necessary legislative processes.	Provide the designer with a complete list of current election documents and legal requirements.
Designer and Usability Expert	Review and become familiar with election design standards and recommendations.	
	Understand variance between EAC best practices and local requirements for poll worker and voter materials.	
Election Official	Estimate value of design improvements.  Gauge impact of the redesign process during the next election planning cycle.	
During election cy	ycle	
Resources	Content development activities	Tips
Simple Language Expert	Edit final English-language content for low-literacy voters.	The EAC has some translations that can be leveraged and modified, but you will need expert assistance on referendum.
Translator	Translate content for non-English-speaking voters.	Understand the translator's requirements before the election: data formats, time line, etc.
		Have a third-party expert review the translated materials after the initial draft. Legal may need to review the materials after simple language and design have been incorporated.
Alternative language/ cultural expert	Review translated content in each alternative language for cultural relevancy.	Translation services may not be aware of possible cultural sensitivities of translated material.
Designer	Election official provides designer with final content for different materials, in English and	

other languages, after they have been reviewed by simple language and cultural experts.

## Voting process

The rolling DRE experience in this section supports intentional ballot completion by voters. Content, design, functionality and navigation elements have each been developed to support this primary goal.

## Key features of the voter's experience are as follows:

- Clear, simple instructions
- Completion indicators
- Persistent review/edit access prior to casting vote
- Under voting notifications
- Fluid access to support or adjustment features

The central rolling DRE flow (shown on the following pages) is organized in a linear voting sequence. This sequence first presents the core voting tasks and options, followed by optional or nonrequired paths (such as accessing voting help).

#### Core tasks include:

- Selecting a language
- Voting
- Reviewing choices
- Casting the ballot

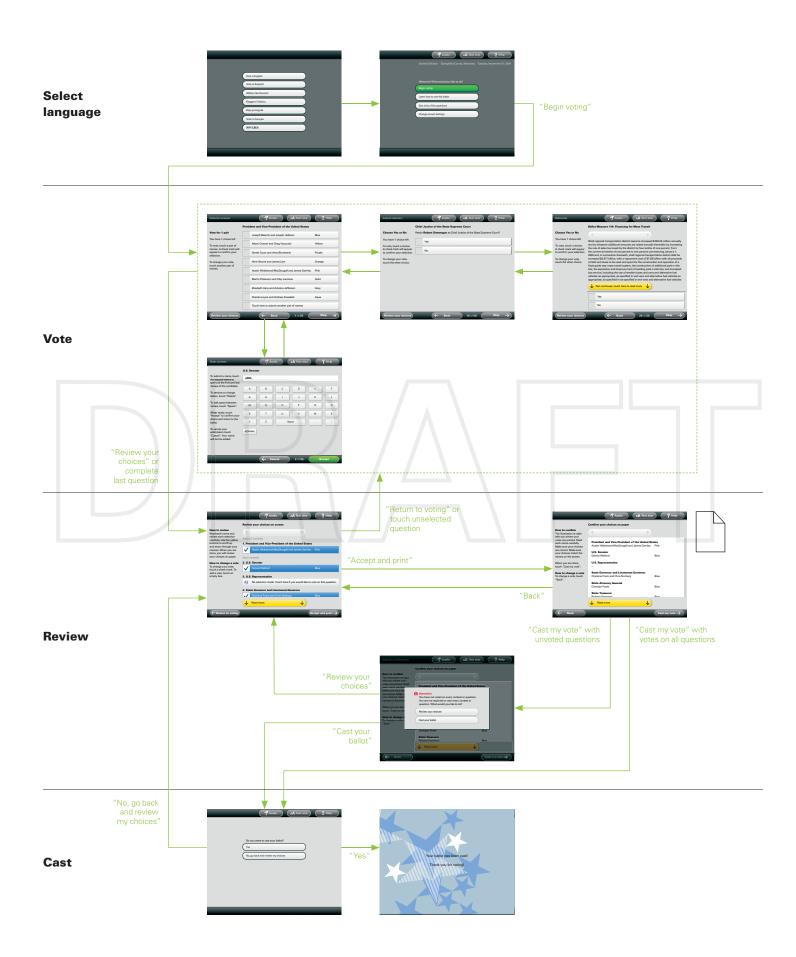
## **Optional tasks:**

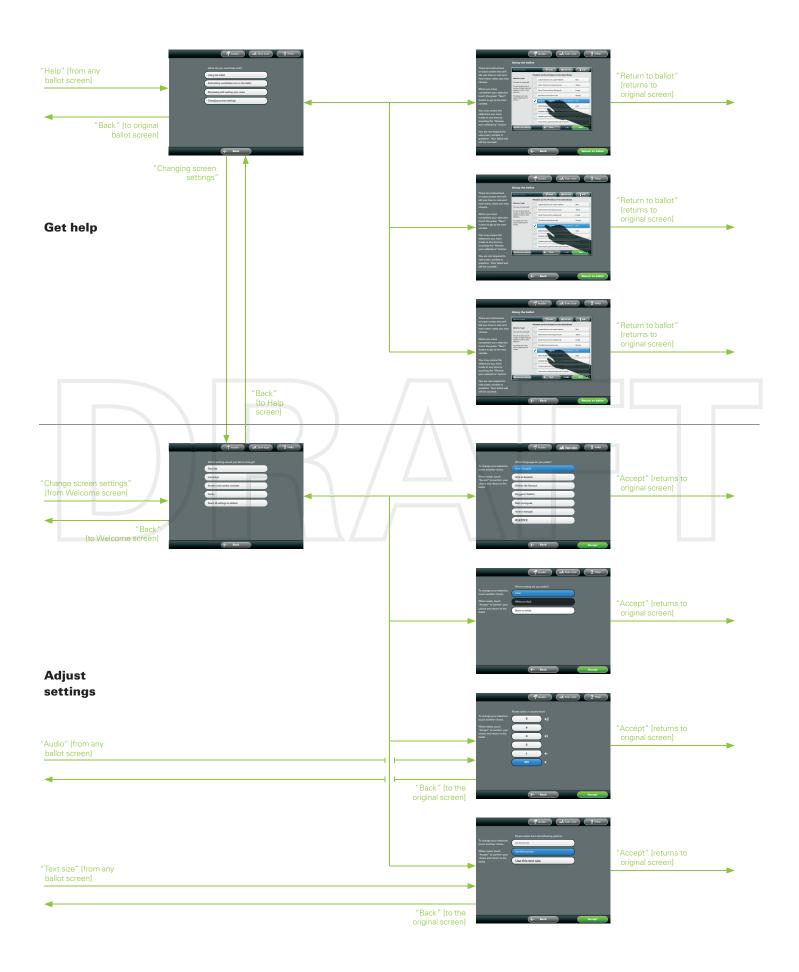
- Accessing help
- Adjusting settings

#### **Experience flow**

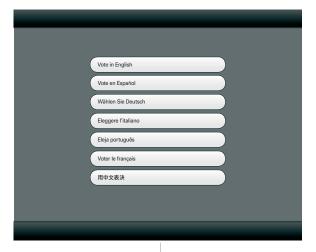
The map on the next page presents an overview of the primary voting path and the navigational options that move users between task "sections." A map of the Help and adjustment screens, which are accessible from all points in the primary path, appears on the right-hand page.

A detailed walkthrough of the core path begins on page 7.





#### Language selection, Welcome, and Voting



#### Language selection screen

Before any voting takes place, the voters are asked to choose their preferred language.

When the voter selects the language, the Welcome screen (below) appears in the chosen language.

The screen can accommodate up to nine language buttons.

The voter can change the language through the "Help" button from any screen on the ballot.



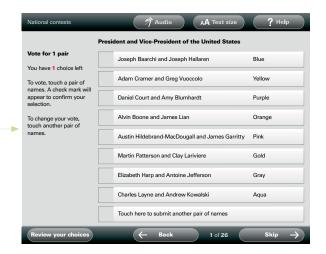
#### Welcome screen

All content appears in the selected language.

The "Begin voting" button 1 takes the voter to the first contest screen (below).

Options to learn how to the use the ballot 2; to see a list of the ballot's contests and questions 3; and to change screen settings 4 are also offered.

Persistent Audio, Text size, and Help options are introduced in the top band.



#### Contest screen

After the voter touches the "Begin voting" button (above), the first contest screen appears and the voter can begin voting.

#### **Voting: single selection**



#### Contest screen

A "voter counter" indicates the number of votes remaining; instructions explain how to make a selection and how to change a selection.

The voter is given a large touch area.

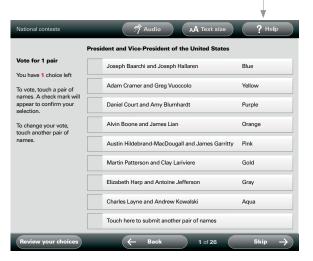
If the voter chooses to skip a contest by touching the "Skip" button 1, the next contest screen will appear.



When the voter makes a selection, it is highlighted by a check mark, color change, and contrast change.

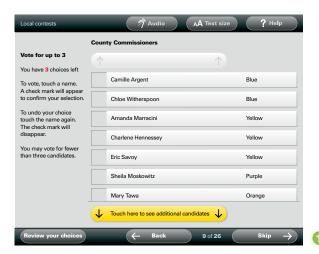
Vote counter changes to indicate "0" votes remaining.

The navigation button 2 changes from "Skip" to "Next," and the color changes to green.



After the voter touches the "Next" button the next contest screen appears and the above sequence is repeated.

## **Voting: multiple selections**



#### Contest screen

A vote counter indicates the number of votes remaining.

If the voter chooses to skip a contest by touching the "Skip" button 1; the next contest screen will appear.

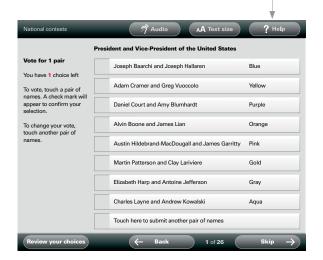
With lengthy lists of candidates, scrolling may be necessary. Color and shape are used to differentiate scroll buttons from candidate buttons.



Voter makes selection. Selection is highlighted via check mark, color change and contrast change.

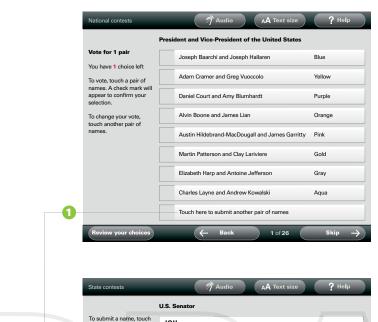
The vote counter changes to indicate the number of votes remaining.

The navigation button 2 changes from "Skip" to "Next," and the color changes to green.



After the voter touches the "Next" button, the next contest screen appears and the above sequence is repeated.

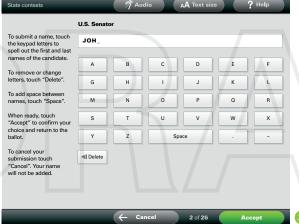
## Voting: submitting names not on the ballot (write-in)



#### Contest screen

The voter chooses to submit a candidate not listed on the ballot ("Write-in") and touches the button labeled "Touch here to submit another candidate" 1

The voter moves to the "Write-in" screen.



2

#### Write-in screen

Instructions specify the keypad entry method.

The voter has the option to cancel 2 or accept 3 an entry.

Once the choice is accepted, the voter is returned to the contest screen. Touching either the "Cancel" or "Accept" navigation buttons returns the voter to the previous contest screen.



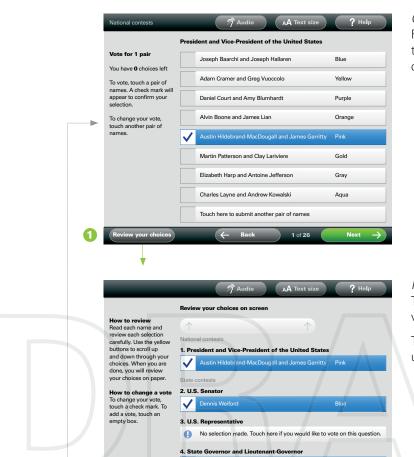
#### Contest screen

The submitted name appears on the contest screen 4.

The voter may touch the "Next" button to move on to the next screen.

If the voter selects an existing name, the "Write-in" button will return to its original state and the new selection will be highlighted.

#### Accessing the review screen



Charlene Franz and Chris Norberg

4

Read more

#### Contest screen

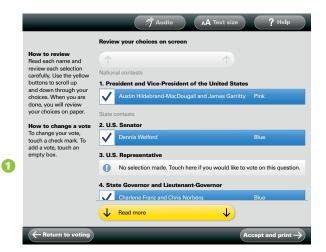
From any point in the ballot the voter may access the review screen by touching the "Review your choices" button 1.

## Review screen

Touching the "Return to ballot" button 2 returns the voter to the previous contest or question.

The Review screen shows the updated list of votes upon each return.

#### **Reviewing and revising choices**



#### Review screen

Voters use the scroll buttons to review their list of votes.

Any unvoted or undervoted contests or questions **1** are clearly indicated.

Touching a name again or touching a button that indicates an unvoted or undervoted contest or question takes the voter to that contest screen.

As shown here, the buttons that indicate a selection match the buttons the voter is familiar with from the voting screens.

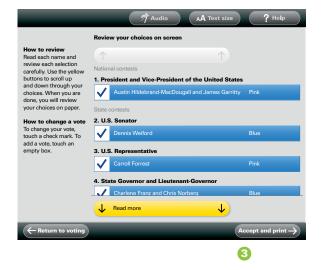


#### Voting screen

At the voting screen the voter can make or revise a selection.

Touching the "Review your choices" button 2 returns voters to the review page—at the point in the list from which they left.

Alternatively, the voter can touch the "Next/Skip" button and move to the next contest screen.



#### Revised review screen

The new or revised selection is indicated on the updated review screen.

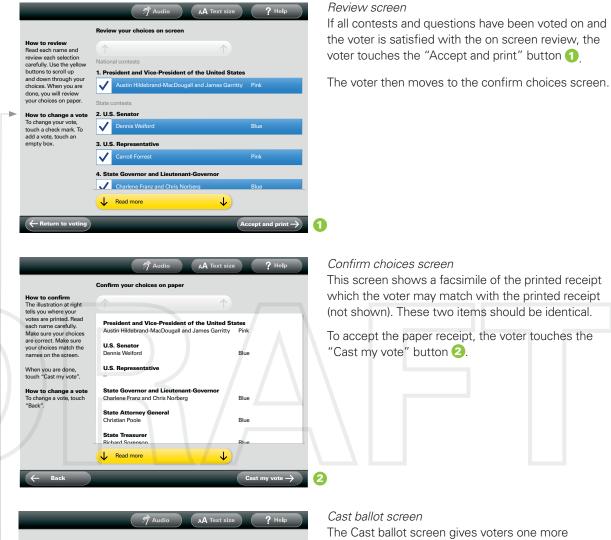
Voter can continue to review their choices or move on to printing their paper receipt 3.

3

Yes

No, go back and review my choices

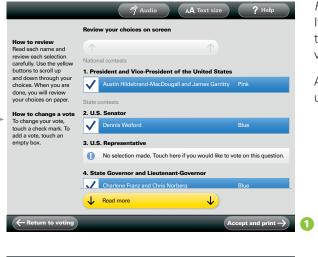
## Confirming selections, printing receipt and casting the ballot



The Cast ballot screen gives voters one more opportunity to go back to the review screen 3, or they can touch the "Yes" button 4 and finish.



## Confirming selections, printing receipt and casting the ballot



#### Review screen

If all contests and questions have **not** been voted but the voter is satisfied with the on screen review, the voter can touch the "Accept and print" button 1

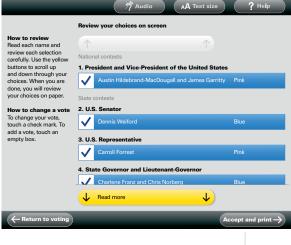
An alert will appear cautioning that the voter has undervoted.



#### Undervote alert screen

This screen gives the voter two choices: either return to the review page and revise the ballot 2 or cast the ballot (even though it is undervoted).

Voters who choose to continue will move to the Confirm screen.



#### Confirm choices screen

Contains an on-screen facsimile of the printed receipt which the voter may match with printed receipt (not shown). The presentation of these two items should be the same.

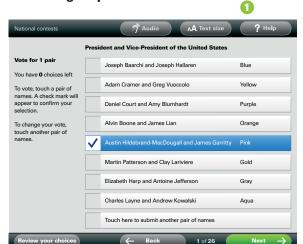
If the voter accepts the paper receipt they touch the "Cast my vote" button 3



## **System alerts**



#### **Accessing help**



From any screen the voter can access the Help main screen by touching the "Help" button 1.



## Main help screen

This screen serves as a hub, with four choices: the "Using the ballot" button 2 takes the voter to detailed instructions; so do "Submitting candidates not on the ballot" 3 and the "Reviewing and casting your votes" 4 buttons. The fourth button, "Change screen settings" 5, leads to another hub, where voters can adjust language, text size, screen contrast and color and turn on audio.

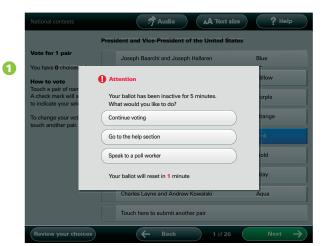
The background color for all Help screens changes to a darker gray to alert voters that they have left the ballot area.



## Using the ballot

Detailed voting instructions with looping animation.

## **Changing screen settings**



#### Main help screen

At the main Help screen, when voters touch the "Changing screen settings" button ①, they move to the main settings screen.



## Main change screen

The settings screen serves as a hub, with five buttons: "Text size" 2; "Language" 3; "Screen color and contrast" 4; "Audio" (on/off and volume adjustment) 5; and "Return settings to default" 6.

Touching the "Languages" button moves the voter to a screen containing a list of languages as shown below.



## Changing screen settings, continued



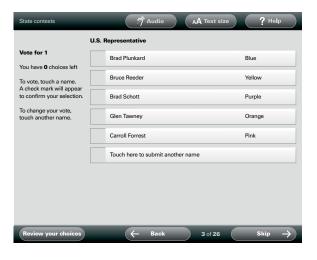
## Language settings screen

To change the language the voter is using during the voting session, the voter goes to the main Change settings screen (see previous page). The voter also goes to the main Change settings screen to change any other available setting—text size, contrast, or audio.



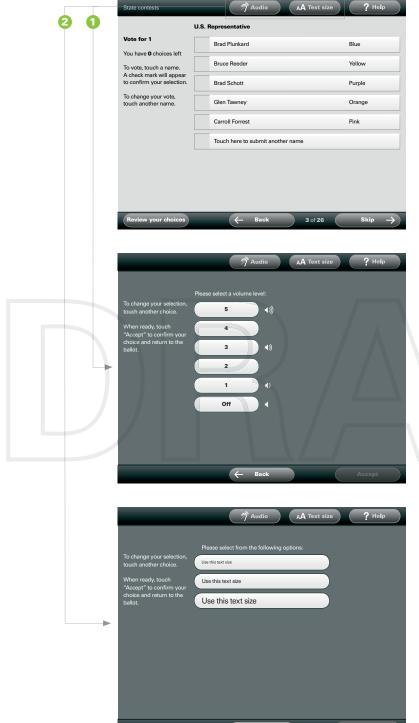
The voter chooses a language by touching the choice. The choice is highlighted and the "Accept" button changes from a dimmed state to green color.

The voter can touch a different button to switch to another language.



Touching the "Accept" button returns the voter the previous voting screen.

## Persistent audio and text setting options



Available from every screen are two settings buttons, the "Audio" on/off and volume control 1; and the "Text size" setting button 2.

If the voter selects either of these buttons they will go directly to the appropriate settings page.

## Audio settings screen

The voter is instructed to begin setting the volume by touching the "1," the lowest volume setting button. A test tone sounds and the voter can adjust the volume accordingly. The choice is highlighted and the "Accept" button changes from a dimmed state to a green color (see page xxx).

Touching the "Accept" button returns the voter to the previous screen.

The voter can touch a different button to readjust the volume.

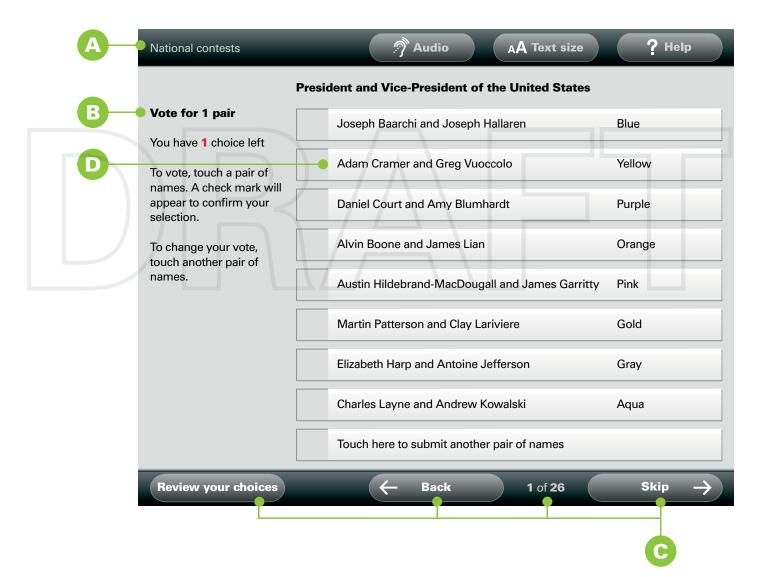
#### Text size settings screen

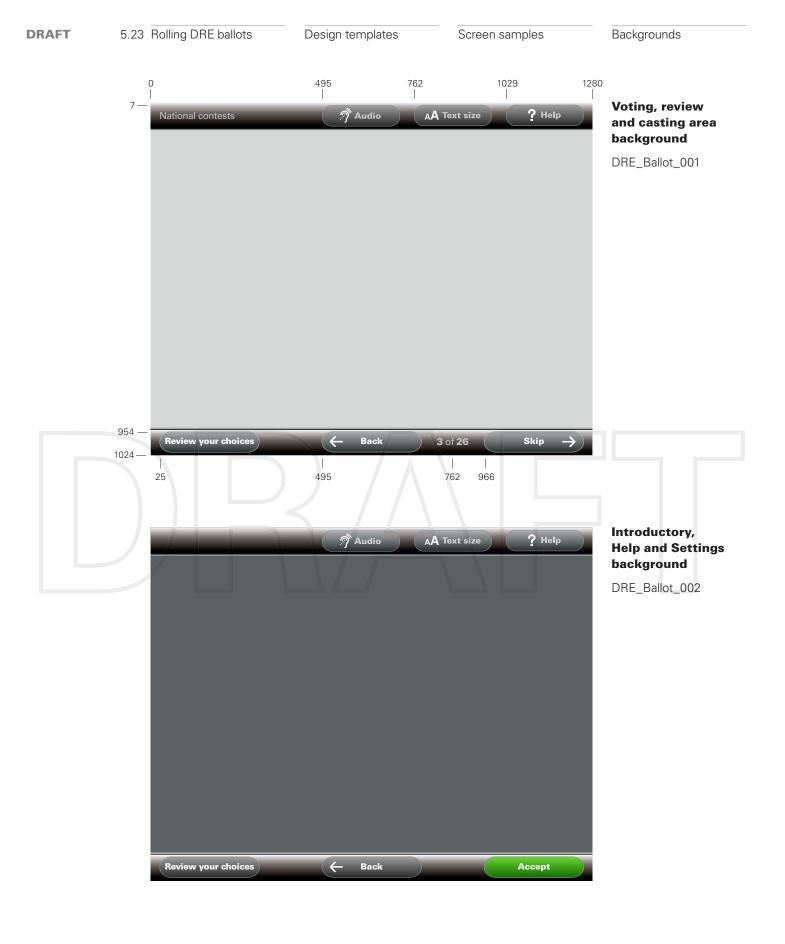
Voters are instructed to choose their preferred text size. Touching the "Accept" button returns the voter to the previous voting screen.

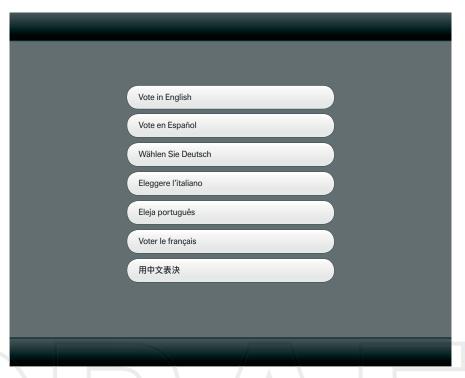
# Design templates

The DRE ballot interface, similar to an optical scan ballot, is comprised of four main components:

- A Election information (e.g. jurisdiction, general election date).
- Ballot instructions.
- © Ballot navigation (including "next," "back," "help," and "begin voting" buttons and screen numbers).
- Ocontent area (including contests, retentions and ballot measures as well as settings, review, and casting options).

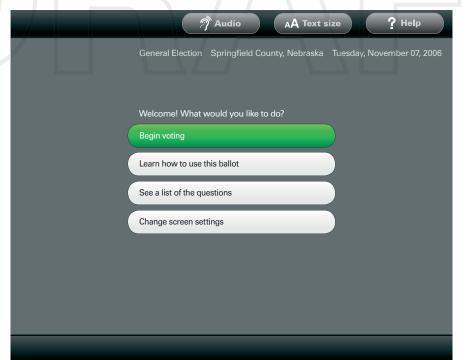




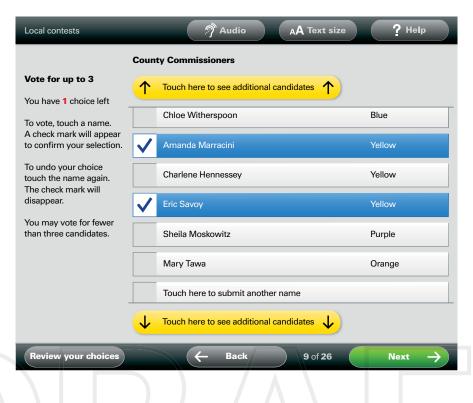


## Language selection



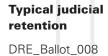






## Contest, multiselection with scrolling

DRE\_Ballot\_007



**P**Audio ? Help Judicial retention AA Text size **Chief Justice of the State Supreme Court Choose Yes or No** Retain **Robert Demergue** as Chief Justice of the State Supreme Court? You have 1 choice left To vote, touch a choice. A check mark will appear No to confirm your selection. To change your vote, touch the other choice. Review your choices Back **15** of **26** Skip

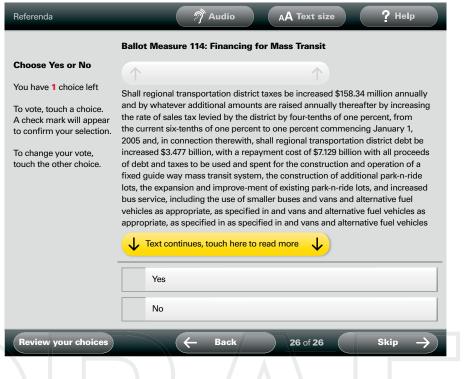
Referenda

To vote, touch a choice.

To change your vote,

touch the other choice.

A check mark will appear



## **Ballot measures with** scrolling

DRE\_Ballot\_009

## Ballot measures, brief text

DRE\_Ballot\_010

## **Revenue Bonds for Renovation of Madison County Jail Facilities** Choose Yes or No Directs the Madison County Public Safety Authority, a building authority You have 0 choices left

Audio

incorporated by Madison County and the City of Ijamsville pursuant to Section 346.27 of the State Code, for the purpose of acquiring, destroying, demolishing, improving, enlarging, equipping, furnishing, repairing, maintaining and operating one or more public buildings for the joint use to confirm your selection. of the County, the City or any school district which is part of the County, to issue its revenue bonds in an amount not exceeding \$29,700,000 for the purpose of acquiring, constructing, furnishing, equipping, renovating and expanding existing jail facilities for the joint use of the County and the City.

AA Text size



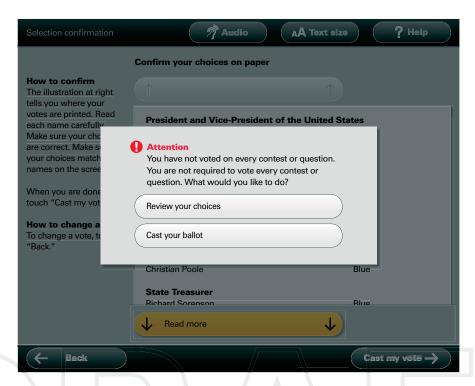
Cast my vote -



Read more

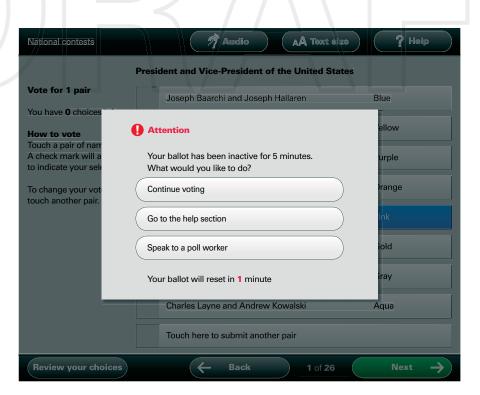
Back



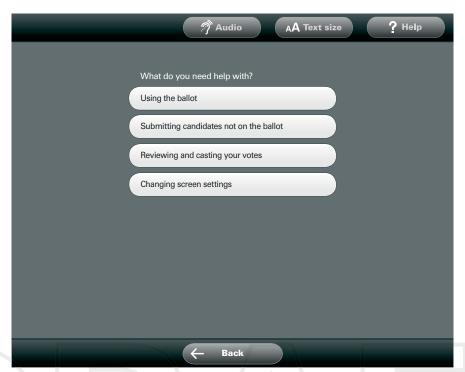


#### **Undervoting alert**

DRE\_Ballot\_015



## **Inactive alert**

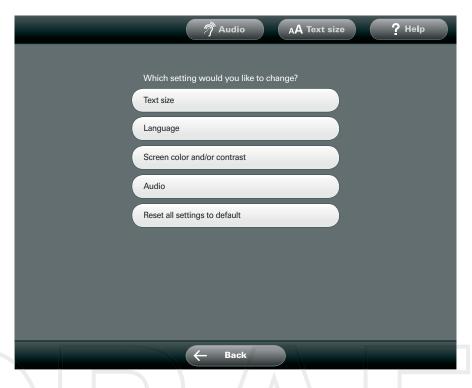


## Main Help screen

DRE\_Ballot\_017

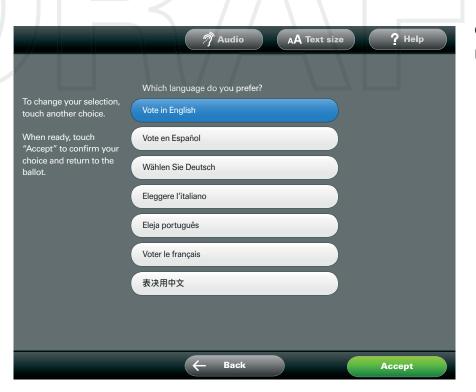


# Help: Using the ballot

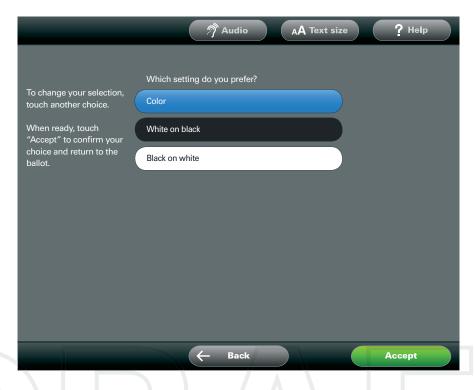


## Main settings screen

DRE\_Ballot\_019



## **Changing languages**



# Changing contrast and color

DRE\_Ballot\_021



# Turning audio on/off adjusting volume

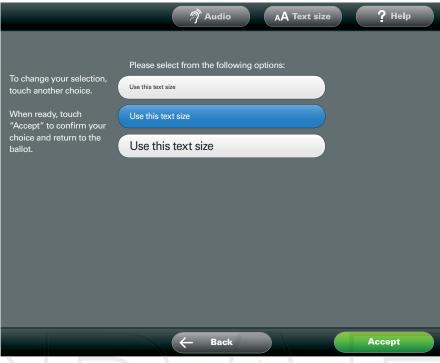
DRAFT

5.34 Rolling DRE ballots

Design templates

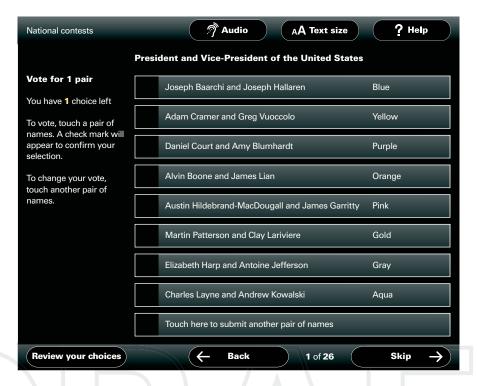
Screen samples

Settings



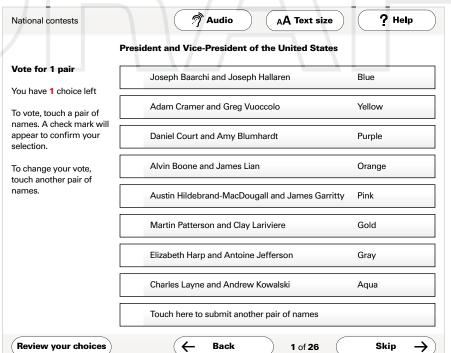
## Changing text size

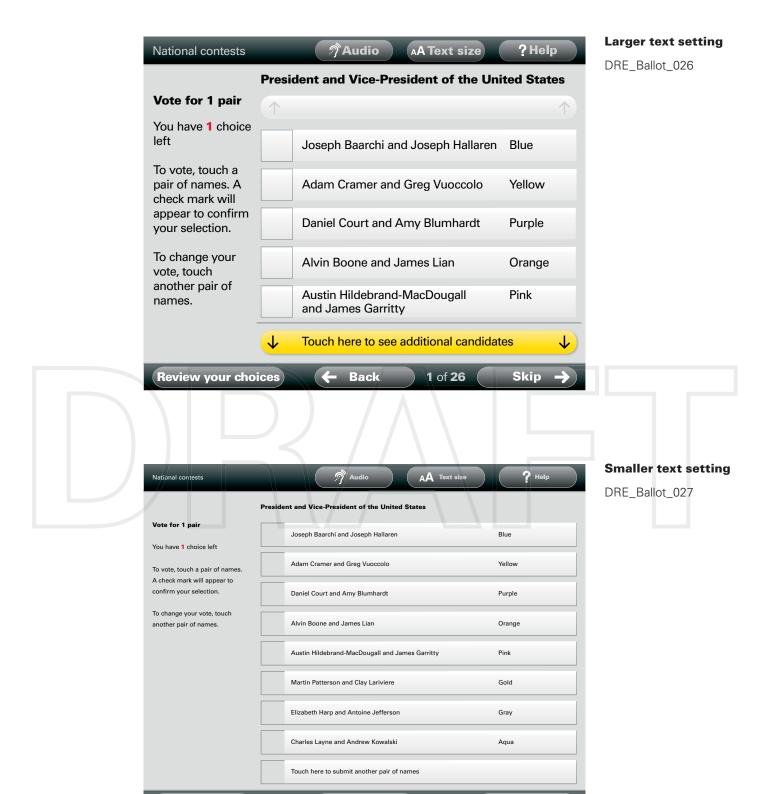


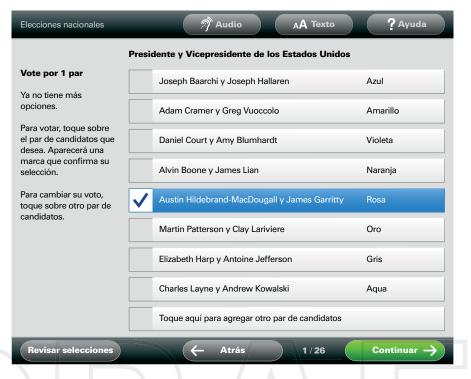


# High contrast white on black









## Typical Spanishlanguage contest screen

DRE\_Ballot\_028



## Typical Chineselanguage contest screen